

DETAILED ACTION

1. This office action is responsive to the amendment filed on 4/6/2006.

Specification

2. The disclosure is objected to because of the following informalities: The term "claim 1" in line 11, Page 12 of the Specification is objected because there is no claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 61-89 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. In claim 61, there is insufficient antecedent basis for "the conductively heatable melt" recited in line 5 in the claim. The recitation "and/or" is considered indefinite per se.
6. In claim 68, there is insufficient antecedent basis for "the elements" recited in line 1 in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 61-67, 72-73, 75-78, 83-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penberthy (US Pat. 2,798,892 hereinafter '892) in view of Penberthy (US Pat. 3,409,725 hereinafter '725') (Cited by applicant).

9. Regarding claims 61-62 and 90, '892 'discloses a melting and/or refining unit for a conductively heatable melt, comprising: a tank having a wall 10 (Fig. 1, Illustrated below) with a wall opening 12 (Fig. 1, Illustrated below) therethrough; at least one electrode 16 (Fig. 1, Illustrated below) passing through the wall opening so as to be immersed in the conductively heatable melt; and a shielding basket 30 (Fig. 1, Illustrated below) except for an apparatus for reducing the local introduction of heating power into at least one region of the wall, wherein the apparatus comprises at least one shielding device arranged in the at least one region; the at least one region is adjacent to the at least one electrode. '725' discloses an apparatus 10 (Fig. 1) for reducing the local introduction of heating power into at least one region of the wall 14 (Fig. 1), wherein the apparatus comprises at least one shielding device 22 (Fig. 1) arranged in the at least one region; and the at least one region is adjacent to the at least one electrode 20 (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in '892' to have an apparatus for reducing the

local introduction of heating power into at least one region of the wall, wherein the apparatus comprises at least one shielding device arranged in the at least one region; the at least one region is adjacent to the at least one electrode, as taught by '725', for the purpose of having a holding apparatus to secure the electrode into the furnace.

10. Regarding claims 63-67, 72-73 and 83-84, '892' further discloses the shielding basket 30 (Fig. 1, Illustrated below) has a basket opening (Fig. 1, Illustrated below) through which the at least one electrode 16 (Fig. 1, Illustrated below) passes, wherein the shielding basket 30 (Fig. 1, Illustrated below) has an axis define through the basket opening (Fig. 1, Illustrated below); the basket opening (Fig. 1, Illustrated below) is arranged in an upper boundary of the shielding basket; the shielding basket 30 (Fig. 1, Illustrated below) is arranged coaxially with respect to the at least one electrode 16 (Fig. 1, Illustrated below); the shielding basket is rotationally symmetrical in form; the shielding basket has an integrally formed upper boundary 34 (Fig. 1, Illustrated below); the shielding basket 30 (Fig. 1, Illustrated below) is secured to the at least one electrode 16 (Fig. 1, Illustrated below); the shielding basket 30 (Fig. 1, Illustrated below) is secured to the wall 10 (Fig. 1, Illustrated below); the at least one electrode 16 (Fig. 1, Illustrated below) is spaced from an inner boundary of the basket opening (Fig. 1, Illustrated below) by a gap, the gap having a width in the range from greater than or equal to 0 to less than or equal to 50 mm; and the width is in the range from greater than or equal to 0 to less than or equal to 30 mm.

11. Regarding claims 75-76, '892' further discloses the at least one electrode 16 (Fig. 1, Illustrated below) has a length that is immersed in the conductively heatable melt and

the shielding basket 30 (Fig. 1, Illustrated below) has a height except for the ratio of the length to the height has a value in the range from greater than or equal to 1 to less than or equal to 20; and the ratio has a value in the range from greater than or equal to 2 to less than or equal to 5. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in '892' to have the ratio of the length to the height has a value in the range from greater than or equal to 1 to less than or equal to 20; and the ratio has a value in the range from greater than or equal to 2 to less than or equal to 5, for the purpose of having adequate length of the electrode to immerse to the furnace that is still secure to the shielding basket.

12. Regarding claims 77-78, '892' further discloses the shielding basket 30 (Fig. 1, Illustrated below) has a basket radius and the at least one electrode 16 (Fig. 1, Illustrated below) has an electrode radius except for the ratio of the basket radius to the electrode radius has a value in the range from greater than or equal to 2 to less than or equal to 15; and the ratio has a value in the range from greater than or equal to 3 to less than or equal to 7. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in '892' to have the ratio of the basket radius to the electrode radius has a value in the range from greater than or equal to 2 to less than or equal to 15; and the ratio has a value in the range from greater than or equal to 3 to less than or equal to 7, for the purpose of having a shielding basket which able to support the electrode.

13. Regarding claim 85, '892' further discloses the shielding basket 30 (Fig. 1, Illustrated below) has a material thickness except for the material thickness in the range

from greater than or equal to 5 mm to less than or equal to 50 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in '892' to have the material thickness in the range from greater than or equal to 5 mm to less than or equal to 50 mm, for the purpose of withstanding the weight of the electrode.

14. Regarding claim 86-87, '892' further discloses the at least one electrode 56 (Fig. 2) is spaced from an inner boundary of the wall opening by a gap 58 (Fig. 2) except for the gap having a width in the range from greater than or equal to 1 mm to less than or equal to 30 mm; and the width is in the range from greater than or equal to 2 mm to less than or equal to 5 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in '892' to have the gap having a width in the range from greater than or equal to 1 mm to less than or equal to 30 mm; and the width is in the range from greater than or equal to 2 mm to less than or equal to 5 mm, for the purpose of having enough space for the molten glass to flow through which form an oxidation seal (Col. 2, Lines 52-60).

15. Regarding claims 88-89, '892' further discloses the wall 10 (Fig. 1, illustrated below) has a thickness at least in an area where the wall is in contact with the conductively heatable melt except for the thickness of the wall is in the range from greater than or equal to 50 mm to less than or equal to 500 mm; and the thickness is in the range from greater than or equal to 100 mm to less than or equal to 300 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in '892' to have the thickness of the wall is in the range from greater

than or equal to 50 mm to less than or equal to 500 mm; and the thickness is in the range from greater than or equal to 100 mm to less than or equal to 300 mm, for the purpose of retaining the temperature within the furnace.

16. Claims 68-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penberthy (US Pat. 2,798,892) in view of Penberthy (US Pat. 3,409,725) and further view of Williamson (US Pat. 4,319,068).

17. Regarding claims 68-71, the combined references discloses substantially all features of the claimed invention as set forth above except for the shielding basket has two rims connected by elements, wherein at least one of the two rims forms the upper boundary; the elements have a longitudinal axis, wherein the longitudinal axis is angled with respect to a surface of the wall that faces the conductively heatable melt; the angle has a value in the range from greater than 0 degree to less than or equal to 90 degree; the angle has a value in the range from greater than or equal to 30 degree to less than or equal to 60 degree. Williamson discloses an apparatus for supporting an electrode has two rims connected by elements 42 (Fig. 1); wherein at least one of the two rims forms the upper boundary 44 (Fig. 1); the elements 42 (Fig. 1) have a longitudinal axis, wherein the longitudinal axis is angled with respect to a surface of the wall 13 (Fig. 1) that faces the conductively heatable melt; the angle has a value in the range from greater than 0 degree to less than or equal to 90 degree; and the angle has a value in the range from greater than or equal to 30 degree to less than or equal to 60 degree. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the shielding basket has two

rims connected by elements, wherein at least one of the two rims forms the upper boundary; the elements have a longitudinal axis, wherein the longitudinal axis is angled with respect to a surface of the wall that faces the conductively heatable melt; the angle has a value in the range from greater than 0 degree to less than or equal to 90 degree; the angle has a value in the range from greater than or equal to 30 degree to less than or equal to 60 degree, as taught by Williamson, for the purpose of having a sturdy electrode holder for the furnace.

18. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Penberthy (US Pat. 2,798,892) in view of Penberthy (US Pat. 3,409,725) and further view of Fineo et al. (US Pat. 4,159,392).

19. Regarding claim 74, the combined references discloses substantially all features of the claimed invention as set forth above except for the shielding basket comprises a material selected from the group consisting of Mo, W, SnO₂, at least one precious metal, an alloy of at least one of Mo, W, SnO₂, and a precious metal, a high-temperature-resistant steel, and any combinations thereof. Fineo et al. discloses he primary electrode tip plate 29, horizontal lower electrode arm 27, elbow 25, arms 23 and 19 are preferably made from a refractory metal having good electrical conductivity such as molybdenum, tungsten, tantalum, or alloys thereof (Col. 3, Lines 22-27). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the shielding basket comprises a material selected from the group consisting of Mo, W, SnO₂, at least one precious metal, an alloy of at least one of Mo, W, SnO₂, and a precious metal, a high-

temperature-resistant steel, and any combinations thereof, as taught by Fineo et al., for the purpose of having the shielding basket made by a strong metal that can withstand the high temperatures and the erosion or deterioration which normally results from the flow of molten glass.

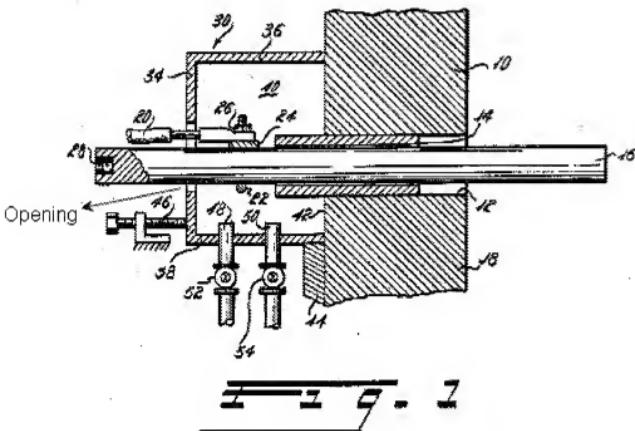
20. Claims 79-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penberthy (US Pat. 2,798,892) in view of Penberthy (US Pat. 3,409,725) and further view of Gillman (US Pat. 4,468,779).

21. Regarding claims 79-81, '892' further discloses the shielding basket 30 (Fig. 1, Illustrated below) has an upper rim 34 (Fig. 1, Illustrated below) having a rim width that is greater than or equal to zero and less than or equal to the basket radius except for the at least one electrode comprises two electrodes spaced from one another by a distance and the shielding basket has a basket radius such that a ratio of the distance to the basket radius has a value in the range from greater than or equal to 3 to less than or equal to 500; and the ratio has a value in the range from greater than or equal to 20 to less than or equal to 80. Gillman discloses two electrodes 12' and 14' (Fig. 4) spaced from one another by a distance and the shielding basket 48' (Fig. 4) has a basket radius such that a ratio of the distance to the basket radius has a value in the range from greater than or equal to 3 to less than or equal to 500. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the at least one electrode comprises two electrodes spaced from one another by a distance and the shielding basket has a basket radius such that a ratio of the distance to the basket radius has a value in the range from

greater than or equal to 3 to less than or equal to 500; and the ratio has a value in the range from greater than or equal to 20 to less than or equal to 80, as taught by Gillman, for the purpose of having heat distribution depends on the size of the furnace.

22. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Penberthy (US Pat. 2,798,892) in view of Penberthy (US Pat. 3,409,725), Gillman (US Pat. 4,468,779) and further view of Williamson (US Pat. 4,319,068).

23. Regarding claim 82, the combined references discloses substantially all features of the claimed invention as set forth above except for the rim width is less than or equal to one third of the basket radius. Williamson discloses the rim width 44 (Fig. 1) is less than or equal to one third of the basket radius. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the rim width is less than or equal to one third of the basket radius, as taught Williamson, for the purpose of having an apparatus which can secure and support an electrode.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-7828. The examiner can normally be reached on Monday-Friday, 9M-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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